



Dkt. 00156

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of:

BOX AF

NICOLE BRU-MAGNIEZ et al

Group Art Unit: 1712

Serial No.: 09/600,895

Examiner: R. E. Sellers

Filed: September 19, 2000

For: NOVEL SURFACTANT COPOLYMERS BASED ON  
METHYLIDENE MALONATE

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RESPONSE

Honorable Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

The following remarks are submitted in response to  
the Office action mailed September 11, 2002.

Claims 11 through 22 stand rejected under 35 USC  
102(b) as anticipated by or under or under 35 USC 103 as  
obvious over PCT Publication WO 96/25954, corresponding to the  
Albayrak et al patent. The Office action states: "[t]he  
claims merely require a biocompatible copolymer containing  
hydrophilic sequences such as polyvinylpyrrolidone or  
polyoxyethylene and hydrophobic sequences such as poly(1-  
ethoxycarbonyl-1-ethoxycarbonylmethyleneoxycarbonyl-ethene)  
which is shown in Examples 12 and 15 of the reference. The

limitations are satisfied regardless of the process of polymerization or the ultimate utility."

The Office action is correct that the claims require a biocompatible copolymer containing a hydrophilic sequence and a hydrophobic sequence. In this regard, however, it is noted that a copolymer contains at least two different monomers covalently bound to one another in a macromolecule. In the case of a block or graft copolymer, a polymer chain AAAA..., derived from monomer A, is covalently bound to a polymer chain BBBB..., derived from a monomer B, to give a molecule of structure ...AAAABBBB... or ..AA(BBBB)AA..., where the polymer chains are derived from A monomers or B monomers, but not from both mixed together at random or alternated.

It is not correct that the copolymer of the invention is disclosed in Examples 12 and 15 of the reference, and this is very much because the process disclosed in the reference does not result in formation of the presently claimed copolymer.

In order to amplify this point, Applicants submit herewith a Declaration Under 37 CFR 1.132 from inventor H. Gerard Riess, Emeritus Professor of Chemical Engineering at the University of Upper Alsace in France. Professor Riess states in the Declaration that what is disclosed in Albayrak et al is a physical blend of a surfactant such as Pluronic® and a poly(methylenemalonate).

Professor Riess states that he has reviewed the process of polymerization disclosed by Albayrak et al, and under the reaction conditions disclosed, it is not possible that a copolymerization of the Pluronic® with the methylenemalondiesters has occurred.

Thus, in order for copolymerization to occur, either a free radical initiator, such as a peroxide or azo derivative, would need to be added to the reaction mixture and oxygen excluded from the reaction mixture, or the reaction would need to occur under strong acid or alkaline conditions to convert the -OH end-groups of the surfactant to O<sup>-</sup> groups.

Neither of these conditions is present in the Albayrak et al patent. Indeed, in the examples of Albayrak et al, the pH of the polymerization mixture is in the range of 5 to 8, at which activation of the OH group will not occur. Moreover, no free radical initiator is present, and oxygen is not excluded.

Accordingly, Professor Riess concludes that a copolymer cannot be formed under the conditions described in Albayrak et al, and the result is therefore simply a physical mixture containing a Pluronic® surfactant and the malondiesther polymer which is formed.

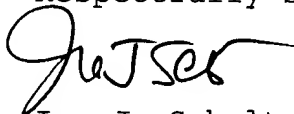
Contrary to the statement made in the Office action, the process of polymerization does have a very clear effect on

the end product of the reaction. The reaction conditions described in the reference simply do not permit the formation of the copolymer which is presently claimed.

Withdrawal of this rejection is requested.

In view of the foregoing amendments and remarks, Applicants submit that the present application is now in condition for allowance. An early allowance of the application is earnestly solicited.

Respectfully submitted,



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